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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/714,771	11/17/2003	Yueh-Chang Chen	DEE-PT138	2421
3624	7590	11/15/2007	EXAMINER	
VOLPE AND KOENIG, P.C. UNITED PLAZA, SUITE 1600 30 SOUTH 17TH STREET PHILADELPHIA, PA 19103			BOLOURCHI, NADER	
ART UNIT	PAPER NUMBER	2611		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/714,771	CHEN, YUEH-CHANG
Examiner	Art Unit	
Nader Bolourchi	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on 07 November 2003.
- 2a) This action is FINAL.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-12 and 14-20 is/are rejected.
- 7) Claim(s) 13 and 21-24 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) All    b) Some \* c) None of:  
1. Certified copies of the priority documents have been received.  
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) Notice of Informal Patent Application
- 6) Other: \_\_\_\_\_

## DETAILED ACTION

### *Priority*

1. Acknowledgment is made of applicant's claim for foreign priority filed in Taiwan on 11/18/2002 under 35 U.S.C. 119(a)-(d).

### *Drawings*

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "Input signal" has been used to designate one of the inputs of both First Multiplexer 51 and Multiplier 55 in Fig. 5. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "Actual Gain and" and "Signal-Energy" have both been used to designate output of IIR Filter 53 in Fig. 5. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid

abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.  
designated the United States and was published under Article 21(2) of such treaty in the English language.
- (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 14 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Strolle et al. (US 6,005,640).

Regarding Claim 14, Strolle et al. disclose: a first multiplexer (Fig. 9: 906) for receiving an input signal (INPUT102 goes throughout 118 in Fig. 1, which passes through 206 in Fig. 2, which outputs to 905 in Fig. 9, going through 902, 904 to input MUX 906) and a

gain (output of 918 in Fig. 9) and generating a first output (input of 928); a second multiplexer (Fig. 9: 946) for receiving a signal time constant (input of 946) and a gain time constant (input of 946 from 944) and generating a second output (input of 948); a filter electrically connected to said first multiplexer and said second multiplexer (Fig. 9: 910) for generating one of a signal-energy (input of 903) and an actual gain (output of 910) in response to said first output and said second output; a signal-energy processing device (Fig. 9: 905) electrically connected to said filter (905 is connected to 910 through 904 and 903), said first multiplexer (905 is connected to 906 through 922, 918) and said second multiplexer (905 is connected to 946 through 922, 912, 920, 916, and 944) for generating said gain (output of 918 in Fig. 9) and said gain time constant (input of 946 from 944) in response to said signal-energy (input of 903);

Regarding Claim 17, Strolle et al. disclose as stated in rejection of claim 14 above.

Strolle et al. also disclose that said filter is an infinite impulse response filter (Fig. 9: 910; col. 11: lines 66-67).

5. Claim 20 is rejected under 35 U.S.C. 102(e) as being anticipated by Isabelle (US 6,397,177)

Regarding Claim 20, Isabelle discloses a gain controlling method for processing a signal-energy (out put of Fig. 1: 200) by means of a signal-energy processing device (Fig. 1: 200) and generating an actual gain in response to said signal-energy (Fig. 1:

300), comprising steps of: a) comparing said signal-energy with a predetermined noise level (col. 2: lines 1-5; Fig. 1: 10; col. 2: lines 51-64; abstract; col. 4: lines 4-12); b) generating a first gain and a first time constant (Fig. 1: 400) by means of said signal-energy processing device if said signal-energy is greater than said noise level (threshold comparison element 500 in col. 4: lines 4-19; time constant in col. 5: line 47-60; col. 6: lines 6-37); c) generating a second gain and a second time constant by means of said signal-energy processing device if said signal-energy is less than or equal to said noise level (preliminary rate decision element 600 computes rate by comparing the energy computed by 200 with thresholds as described in col. 4: lines 4-41; Examiner notes that comparing signal-energy with different predetermined noise level, results in generation of different rates as well as well as hangover intervals, as described in col. 4: line 4 to col. 5: line 55, which are interpreted as gains and time constants by the Examiner).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-5, 8, 10-11, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Strolle et al. in view of Rimini et al. (US 6,836,647).

Regarding Claim 1, Strolle et al. disclose: a first multiplexer (Fig. 9: 906) for receiving an input signal (INPUT102 goes throughout 118 in Fig. 1, which passes through 206 in Fig. 2, which outputs to 905 in Fig. 9, going through 902, 904 to input MUX 906) and a gain (output of 918 in Fig. 9) and generating a first output (input of 928); a second multiplexer (Fig. 9: 946) for receiving a signal time constant (input of 946) and a gain time constant (input of 946 from 944) and generating a second output (input of 948); a filter electrically connected to said first multiplexer and said second multiplexer (Fig. 9: 910) for generating one of a signal-energy (input of 903) and an actual gain (output of 910) in response to said first output and said second output; a signal-energy processing device (Fig. 9: 905) electrically connected to said filter (905 is connected to 910 through 904 and 903), said first multiplexer (905 is connected to 906 through 922, 918) and said second multiplexer (905 is connected to 946 through 922, 912, 920, 916, and 944) for generating said gain (output of 918 in Fig. 9) and said gain time constant (input of 946 from 944) in response to said signal-energy (input of 903); Strolle et al. do not disclose any multiplier in Fig. 9, connected to said filter (Fig. 9: 910) for multiplying said actual gain (output of filter 910) by said input signal (input 102 in Fig. 1, which is input to MUX 906, as stated above) to generate an output signal (Fig. 1: 136).

Rimini et al. disclose that input signal (received RF signal in step 505 of Fig. 5) is multiplied by actual gain (digital-gain setting in step 535 of Fig. 5) to generate output signal (output of multiplier provided modulator in step 540 of Fig. 5; col. 8: lines 24-31). Therefore, It would have been obvious to one of ordinary skill in the art, at the time the

invention was made to combine the teaching of Strolle et al. and Rimini et al. for the purpose of generating gain-value product as suggested by Rimini et al. (Abstract)

Regarding Claim 2, Strolle et al. and Rimini et al. disclose as stated in rejection of claim 1 above. Strolle et al. also disclose that said input signal is a volume signal (Fig. 1: input 102 at the out put of 118 is audio).

Regarding Claim 3, Strolle et al. and Rimini et al. disclose as stated in rejection of claim 1 above. Strolle et al. inherently disclose that first output and said second output are determined by said first multiplexer and said second multiplexer respectively by means of a level variation at an enabling end, because this is the function of a multiplexer..

Regarding Claim 4, Strolle et al. and Rimini et al. disclose as stated in rejection of claim 3 above. Strolle et al. inherently disclose that said first output and said second output are said input signal and said signal time constant respectively when said enabling end is at a high level, because this is the function of the multiplexer with 2 inputs.

Regarding Claim 5, Strolle et al. and Rimini et al. disclose as stated in rejection of claim 3 above. Strolle et al. inherently disclose that said first output and said second output are said gain and said gain time constant respectively when said enabling end is at a low level, because this is the function of the multiplexer with 2 inputs.

Regarding Claim 8, Strolle et al. and Rimini et al. disclose as stated in rejection of claim 1 above. Strolle et al. also disclose that said filter is an infinite impulse response filter (Fig. 9: 910; col. 11: lines 66-67).

Regarding Claim 10, Strolle et al. and Rimini et al. disclose as stated in rejection of claim 8 above. Strolle et al also disclose that said signal-energy (input of 903) is output by said filter when said first output (input of 928) is said input signal (INPUT102 goes throughout 118 in Fig. 1, which passes through 206 in Fig. 2, which outputs to 905 in Fig. 9, going through 902, 904 to input MUX 906) and said second output (input of 948) is said signal time constant (input of 946).

Regarding Claim 11, Strolle et al. and Rimini et al. disclose as stated in rejection of claim 8 above. Strolle et al also disclose said actual gain is output by said filter (output of 910) when said first output (input of 928) is said gain (output of 918 in Fig. 9) and said second output (input of 948) is said gain time constant (input of 946 from 944).

Regarding Claim 15, Strolle et al. disclose as stated in rejection of claim 14 above. Strolle et al. do not disclose any multiplier in Fig. 9, connected to said filter (Fig. 9: 910) for multiplying said actual gain (output of filter 910) by said input signal (input 102 in Fig. 1, which is input to MUX 906, as stated above) to generate an output signal (Fig. 1: 136).

Rimini et al. disclose that input signal (received RF signal in step 505 of Fig. 5) is multiplied by actual gain (digital-gain setting in step 535 of Fig. 5) to generate output signal (output of multiplier provided modulator in step 540 of Fig. 5; col. 8: lines 24-31). Therefore, It would have been obvious to one of ordinary skill in the art, at the time the invention was made to combine the teaching of Strolle et al. and Rimini et al. for the purpose of generating gain-value product as suggested by Rimini et al. (Abstract)

7. Claims 6-7 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Strolle et al. in view of and Rimini et al., and further in view of Imanaka et al. (US 6,580,770).

Regarding Claim 6, Strolle et al. and Rimini et al. disclose as stated in rejection of claim 1 above. Strolle et al. and Rimini et al. do not disclose that the automatic gain controller comprising a flip-flop electrically connected to said multiplier for outputting said output signal according to said level at said enabling end.

Imanaka et al. disclose a flip-flop (Fig. 5: 17f) electrically connected to said multiplier (Fig. 5: 17d) for outputting said output signal (Fig. 5: FQ; col. 6: lines 49-55). Therefore, It would have been obvious to one of ordinary skill in the art, at the time the invention was made to combine the teaching of Strolle et al. and Rimini et al. with Imanaka et al. for the purpose of operating with uniform characteristics and achieving high performance Rimini et al. (col. 2: lines 26-42)

Regarding Claim 7, Strolle et al., Rimini et al. and Imanaka et al. disclose as stated in rejection of claim 6 above. Imanaka et al. also disclose that said flip-flop is a D type flip-flop. (Fig. 5: 17f)

Regarding Claim 16, Strolle et al. and Rimini et al. disclose as stated in rejection of claim 15 above. Strolle et al. and Rimini et al. do not disclose that the automatic gain controller comprising a flip-flop electrically connected to said multiplier for outputting said output signal according to said level at said enabling end.

Imanaka et al. disclose a flip-flop (Fig. 5: 17f) electrically connected to said multiplier (Fig. 5: 17d) for outputting said output signal (Fig. 5: FQ; col. 6: lines 49-55). Therefore, It would have been obvious to one of ordinary skill in the art, at the time the invention was made to combine the teaching of Strolle et al. and Rimini et al. with Imanaka et al. for the purpose of operating with uniform characteristics and achieving high performance Rimini et al. (col. 2: lines 26-42)

8. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Strolle et al. in view of and Rimini et al., and further in view of Sun (US 5,654,909).

Regarding Claim 9, Strolle et al. and Rimini et al. disclose as stated in rejection of claim 8 above. Strolle et al. and Rimini et al. are silent about shift registers in IIR filter.

Sun discloses that the IIR filter comprises two shift registers (col. 1: lines 31-40). Therefore, It would have been obvious to one of ordinary skill in the art, at the time the invention was made to combine the teaching of Strolle et al. and Rimini et al. with Sun for the purpose of providing high precision filters as suggested by Sun (col. 1: lines 23-30)

9. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Strolle et al. in view of and Rimini et al., and further in view of Snell et al. (US 4,241,454).

Regarding Claim 12, Strolle et al. and Rimini et al. disclose as stated in rejection of claim 14 above. Strolle et al. and Rimini et al. are silent about said signal-energy processing device comprises a comparator and a divider.

Snell et al. disclose signal-energy processing device (Fig. 2: 13; Fig. 3) comprises a comparator and a divider (col. 4: lines 12-20). Therefore, It would have been obvious to one of ordinary skill in the art, at the time the invention was made to combine the teaching of Strolle et al. and Rimini et al. with Snell et al. for the purpose of preventing false locking as suggested by Snell et al. (Abstract: last paragraph).

10. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Strolle et al. in view of Sun.

Regarding Claim 18, Strolle et al. disclose as stated in rejection of claim 17 above. Strolle et al. are silent about shift registers in IIR filter.

Sun discloses that the IIR filter comprises two shift registers (col. 1: lines 31-40). Therefore, It would have been obvious to one of ordinary skill in the art, at the time the invention was made to combine the teaching of Strolle et al. and Rimini et al. with Sun for the purpose of providing high precision filters as suggested by Sun (col. 1: lines 23-30)

11. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Strolle et al. in view of Snell et al.

Regarding Claim 19, Strolle et al. disclose as stated in rejection of claim 14 above. Strolle et al. are silent about said signal-energy processing device comprises a comparator and a divider.

Snell et al. disclose signal-energy processing device (Fig. 2: 13; Fig. 3) comprises a comparator and a divider (col. 4: lines 12-20). Therefore, It would have been obvious to one of ordinary skill in the art, at the time the invention was made to combine the teaching of Strolle et al. and Snell et al. for the purpose of avoiding false locking, as suggested by Snell et al. (Abstract: last paragraph)

***Allowable Subject Matter***

12. Claims 13 and 21-24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

13. As allowable subject matter has been indicated, applicant's reply must either comply with all formal requirements or specifically traverse each requirement not complied with. See 37 CFR 1.111(b) and MPEP § 707.07(a).

***Remarks***

14. No claim is allowed.

***Conclusion***

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Scarpa et al. (US 5,673,293); Black et al. (US 5,757,858).

***Contact Information***

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nader Bolourchi whose telephone number is (571) 272-8064. The examiner can normally be reached on M-F 8:30 to 4:30.

17. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David. C. Payne can be reached on (571) 272-3024. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

18. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at (866) 217-9197 (toll-free).

Nader Bolourchi

11/03/2007

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